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EQUIPMENT FOR MULTIPLEXING MULTICHANNEL RADIO-RELAY
LINES OF COMMUNICATION(U) FOREIGN TECHNOLOGY DIV
WRIGHT-PATTERSON AFB OH M N STOYANOV 08 NOV 84
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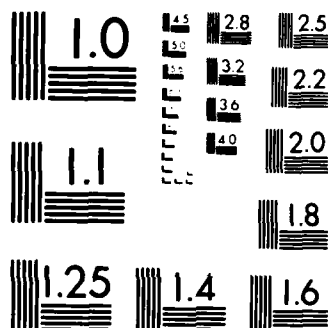
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

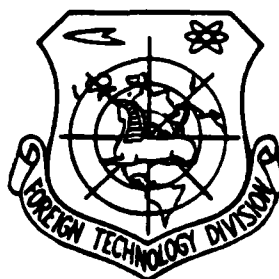
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FOREIGN TECHNOLOGY DIVISION



EQUIPMENT FOR MULTIPLEXING MULTICHANNEL RADIO-RELAY LINES
OF COMMUNICATION



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EDITED TRANSLATION

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EQUIPMENT FOR MULTIPLEXING MULTICHANNEL RADIO-RELAY LINES
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FOREIGN TECHNOLOGY DIVISION
WP.AFB, OHIO.

U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

Block	Italic	Transliteration	Block	Italic	Transliteration
А а	<i>A a</i>	A, a	Р р	<i>P p</i>	R, r
Б б	<i>B b</i>	B, b	С с	<i>C c</i>	S, s
В в	<i>V v</i>	V, v	Т т	<i>T t</i>	T, t
Г г	<i>G g</i>	G, g	У у	<i>U u</i>	U, u
Д д	<i>D d</i>	D, d	Ф ф	<i>F f</i>	F, f
Е е	<i>E e</i>	Ye, ye; E, e*	Х х	<i>X x</i>	Kh, kh
Ж ж	<i>Zh zh</i>	Zh, zh	Ц ц	<i>Ts ts</i>	Ts, ts
З з	<i>Z z</i>	Z, z	Ч ч	<i>Ch ch</i>	Ch, ch
И и	<i>I i</i>	I, i	Ш ш	<i>Sh sh</i>	Sh, sh
Й й	<i>Y y</i>	Y, y	Щ щ	<i>Shch shch</i>	Shch, shch
К к	<i>K k</i>	K, k	Ъ ъ	<i>"</i>	"
Л л	<i>L l</i>	L, l	Ы ы	<i>Y y</i>	Y, y
М м	<i>M m</i>	M, m	Ь ь	<i>'</i>	'
Н н	<i>N n</i>	N, n	Э э	<i>E e</i>	E, e
О о	<i>O o</i>	O, o	Ю ю	<i>Yu yu</i>	Yu, yu
П п	<i>P p</i>	P, p	Я я	<i>Ya ya</i>	Ya, ya

*ye initially, after vowels, and after ъ, ы; e elsewhere.
When written as ё in Russian, transliterate as yë or ë.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	sinh ⁻¹
cos	cos	ch	cosh	arc ch	cosh ⁻¹
tg	tan	th	tanh	arc th	tanh ⁻¹
ctg	cot	cth	coth	arc cth	coth ⁻¹
sec	sec	sch	sech	arc sch	sech ⁻¹
cosec	csc	csch	csch	arc csch	csch ⁻¹

Russian	English
rot	curl
lg	log

GRAPHICS DISCLAIMER

All figures, graphics, tables, equations, etc. merged into this translation were extracted from the best quality copy available.

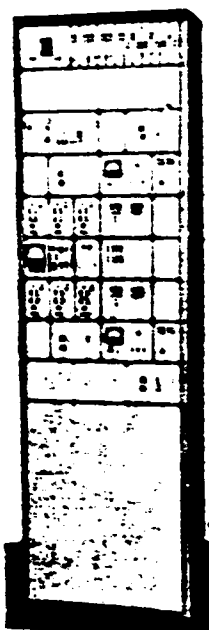
EQUIPMENT FOR MULTIPLEXING MULTICHANNEL RADIO-RELAY LINES OF COMMUNICATION

No author

Chief editor of journal M. N. Stoyanov

The equipment is intended for organizing six hf telephone channels in the frequency range of 4-32 kHz in a single-band four-wire system. The channels of the equipment are intended for use in a system of rural communication as connecting lines between terminal RTS and ATS, and also for organizing the automatic transit through ATS. [RTS - manual office, ATA - automatic office]. Depending on the type of tandem ATS the automatic connection of channels can be realized in two-wire and four-wire systems. The equipment provides the opportunity of secondary multiplexing of channels.

The system of frequency conversions is constructed on the base of two three-channel groups of frequencies of 12-24 kHz, which with the help of two stages of group conversion are transferred into the linear spectrum of frequencies of 4.0-32 kHz. The equipment operates in the temperature range of +5-+40°C with a relative humidity up to 95%. Power supply of the station is realized from a network of alternating current with a voltage of 220 and 127 V with fluctuations of voltage from +10 to -20%, or from reserve sources of direct current with a voltage of 24 V $\pm 20/-10$ % or 60 V $\pm 20/-10$ %. Switching from the main source of power to reserve is done automatically. The maximum range of communication with retransmission between points of 45-50 km is 300 km. For communication of the maximum extent it is possible to



set up two intermediate points with separation of from one to three telephone channels. The line of maximum extent consists of seven stations of radio equipment - one main, five intermediate, and one terminal. The construction of the equipment ensures, in case of necessity, the possibility to separate channels at any intermediate station.

At intermediate points where there is no need for separation of channels the multiplexing equipment is not installed.

In the equipment the possibility is provided for the organization in place of three telephone channels of a "wide" channel with a band of effectively transmitted frequencies of 12.3-23.4 kHz. These channels can be used for the transmission of data at a rate of 12 kilobauds, and also for the organization of high-frequency transits by three-channel groups. For the transmission of a call and dialing an extension signal channel with a calling frequency of 3825 Hz is used. The multiplexing equipment includes the OR-6 terminal stations and the VR-6 intermediate stations with channel separation. The equipment is made completely on transistors.

The intake power in the case of supply voltage of 220 V from the OR-6 is 71 V-A, and for the VR-6 - 82 V-A.

The generator equipment is constructed on a base of one master oscillator, which ensures a high stability of carrier frequencies. In the equipment filters on LC-elements without the use of quartz resonators is used.

The ARU system is electric. On one stand it is possible to place two OR-6 terminal stations or one VR-6 intermediate station. For convenience of servicing the station has a measuring oscillator and a level meter. The equipment for the channel for the link between operators ensures loudspeaker reception of a call from any point of the main line. The design of the equipment provides ready access to all the elements. Inclusion of the units in the layout of the station is realized with the help of 16 contact knife-type blocks, located inside the unit. Mainly the units consist of printed plates, connected together by space-wired interconnections. The design and dimensions

of the plates are standardized, the distance between modules is a multiple of 16 mm. The modules are secured in the unit by a screw and common shaft, passing through the sleeve of the module. Hybrid sets are installed in the upper section of the stand.

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